

LISTING OF THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently amended) A process for joining at least two substrates having electrical, semiconducting, mechanical and/or optical components, comprising the steps of:
providing a first substrate;
producing a joining element in the form of a frame on a first surface of the first substrate, the frame being made of a material selected from the group consisting of a binary system of materials, a glass, and a vitreous material, and the material being applied by evaporation coating, wherein the step of producing the joining element comprises structuring the joining element by a lift-off technique comprising patterning a photoresist-layer, applying the material by evaporation coating, dissolving the photoresist-layer to remove the evaporated layer thereon;
providing a second substrate; and
joining the first and second substrates by the joining element.
2. (Previously presented) The process as claimed in claim 1, wherein the joining element is deposited on the first surface of the first substrate and is joined to the first substrate while it is being deposited.
3. (Previously presented) The process as claimed in claim 1, wherein the joining element is applied to the first surface of the first substrate by evaporation coating.
4. (Cancelled)
5. (Previously presented) The process as claimed in claim 1, further comprising producing one or more supporting elements inside the joining element on the first surface of the first substrate.

6. (Previously presented) The process as claimed in claim 1, further comprising applying a plurality of nested frames by evaporation coating as the joining element.

7. (Previously presented) The process as claimed in claim 1, wherein the step of producing the joining element comprises deposition of a binary material system by evaporation coating.

8. (Previously presented) The process as claimed in claim 1, further comprising applying and structuring a glass layer by evaporation coating through a mask to form the joining element.

9. (Cancelled).

10. (Previously presented) The process as claimed in claim 1, wherein the joining element and the second substrate are joined by a joint selected from the group consisting of an adhesive joint, a soldered joint, and a bonded joint.

11. (Previously presented) The process as claimed in claim 1, wherein the joining element and the second substrate are joined by a joint selected from the group consisting of an anodic bond, a fusion bond, a sol-gel bond, and a low-temperature bond.

12. (Previously presented) The process as claimed in claim 1, wherein the first and second substrates comprise a first and second wafer, respectively, and wherein the process further comprises

producing a multiplicity of laterally adjacent joining elements on the first surface of the first wafer, and

after the first and second wafers have been joined to form a wafer assembly, dicing the wafer assembly into individual chips.

13. (Previously presented) The process as claimed in claim 1, further comprising forming a cavity between the first and second substrates and inside the frame.

14. (Previously presented) The process as claimed in claim 1, further comprising arranging interconnects on the first surface of the first substrate, and applying the joining element to the first surface by evaporation coating in such a manner that the interconnects are at least partially covered.

15. (Previously presented) The process as claimed in claim 14, wherein the interconnects extend laterally or vertically through the joining element.

16. (Previously presented) The process as claimed in claim 1, further comprising planarizing the joining element after it has been produced on the first surface of the first substrate.

17. (Previously presented) The process as claimed in claim 1, further comprising producing alignment elements on the first surface or a second surface of the first substrate, the second surface being on the opposite side from the first surface.

18. (Previously presented) The process as claimed in claim 1, further comprising joining a multiplicity of substrates to form a stack.

19-34. (Cancelled).

37. (Currently amended) A process for joining substrates having electrical or optical components, comprising:

providing a first substrate and a second substrate;

in a first step, applying a frame to at least one surface of the first substrate, glass being used as material for the frame and the glass being applied by evaporation coating, wherein the step of applying the frame comprises structuring a glass layer by a lift-off technique comprising patterning a photoresist-layer, applying the material by evaporation coating, and dissolving the photoresist-layer to remove the evaporated layer thereon; and

in a second, subsequent step, joining or bonding a surface of the second substrate to the frame so that a cavity is formed between the first and second substrates and inside the frame.

38. (Cancelled).

39. (Currently amended) A process for joining at least two substrates having electrical, semiconducting, mechanical and/or optical components, comprising the steps of:

providing a first substrate;

producing a plurality of nested frame joining elements on a first surface of the first substrate, said plurality of nested frame joining elements being nested inside one another;

providing a second substrate; and

joining the first and second substrates by the plurality of nested frame joining elements.

40. (Currently amended) A composite element having electrical, electronic, semiconducting, mechanical and/or optical components, comprising:

a first substrate;

a joining element on a first surface of the first substrate;

a second substrate, the first and second substrates being joined by the joining element; and

a plurality of nested frames being provided as the joining element, said plurality of nested frame joining elements being nested inside one another.

41. (Cancelled)